UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,547	12/18/2000	Ingrid Zulma Benoit Van De Voorde	Q62184	1517

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Office Action Summary	Application No. 09/737,547	Applicant(s) VAN DE VOORDE ET AL.
		Examiner Nittaya Juntima	Art Unit 2663

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2000*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *18 December 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *paper no. 2*.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Specification

1.   The abstract of the disclosure is objected to because of undue length. Correction is

required. See MPEP § 608.01(b).

2.   35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear,

concise, and exact terms." The specification is replete with terms which are not clear, concise

and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112,

first paragraph. Examples of some unclear, inexact or verbose terms used in the specification

are: "predefined place in a downstream data packet," "a predefined first place," "a predefined

second place of the downstream data packet." Page 2 of the preliminary amendment contains

these confusing terms which do not enable one to understand how these terms are related to the

invention as described in on pg. 5, lines 21-pg. 6, lines 1-10 of the specification.

3.   The disclosure is objected to because of the following informalities:

- pg. 1, line 21, "f.i." should be deleted;

- pg. 3, line 16, "f.i." should be deleted;

line 20, "form" should be changed to "from," "LS" should be changed to "LT,"

and "by" should be changed to "of;"

- pg. 5, lines 26 and 28, "detecting" should be changed to "recognition" to maintain

consistency; and

line 29, "DET" should be changed to "REC;"

- pg. 6, line 2, "detection" should be changed to "recognition;"

line 9, "322" should be changed to "622."

Appropriate correction is required.

Claim Objections

4.   Claims 1-3, and 5 are objected to because of the following informalities:

in claim 1, line 3, "that" should be deleted;

line 6, "including" should be changed to "inserting" to better represent the

claim function;

line 25, "a" should be deleted;

in claim 2, lines 6 and 11, "include" should be chnaged to "insert" to better represent the

claim function;

in claim 3, line 10, "packets" should be changed to "packet;"

line 20, "a" should be deleted;

in claim 5, line 5, "to" should be changed to "for;" and

in claims 2 and 3, the limitation "adapted to" should be changed, e.g. " an insertion

device adapted to include.." in line 6 of the claim should be changed to ":an insertion

device includes..". It has been held that the recitation that an element "adapted to" perform a

function is not a positive limitation but only requires the ability to so perform. It does not

constitute a limitation in any patentable sense. In *re Hutchinson*, 69 USPQ 138.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 and 4-5 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. "A transmitter" having a function to recognize its own grant as recited in claim 3 is not taught any where in the specification, see pg. 4, lines 1-3 and pg. 5, lines 24-26 of the specification.

6.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The following claims contain vague and indefinite limitations:

Claim 1, line 2, "a tree-like" should be changed as it cannot be determined whether the network has a tree topology;

lines 6-7, "predefined place in a downstream data packet" is vague and indefinite as it cannot be determined whether a predefined place is a grant location(byte) or a type of grant field;

line 22-24, "said higher order timeslots being subslots of a predefined number of higher order subslots included in said predefined upstream timeslot" is vague and indefinite as

it cannot be determined how the higher order timeslots can be subslots of a predefined number of

higher order subslots in the predefined upstream timeslot – in other words, referring to Fig. 2,

how the 4 subslots be subslots of 4 subslots included in the 155 Mb/s slot;

line 25, "transmitting said upstream data packet in a said higher order timeslot"

is vague and indefinite as it cannot be determined from the claim language as why and how the

same upstream data packet would be transmitted twice in the same higher order timeslot, i.e.

being first transmitted in one of a plurality of higher order timeslots in line 19 and then again in

the higher order timeslot when said predefined place is a predefined second place in lines 25-28;

line 27, "a predefined second place" is vague and indefinite as it cannot be

determined whether a predefined second place is a grant location(byte) or a type of grant field in

the same downstream data packet as recited in line 7 of the claim and if so, having two

predefined places be located in the same downstream data packet is not taught in Fig. 2 which

shows two different grants being allocated in two different PLOAM cells.

Claim 2, line 2, "a tree-like" should be changed as it cannot be determined whether the

network has a tree topology;

line 7, "a predefined first place" is vague and indefinite as it cannot be

determined whether a predefined first place is a grant location(byte) or a type of grant field;

line 11, "a predefined second place" is vague and indefinite as it cannot be

determined whether a predefined second place is a grant location(byte) or a type of grant field;

lines 11-12, "a predefined second place of said downstream data packet a grant

being associated with said one of said plurality of network terminators" is vague and indefinite

as it cannot be determined as why there should be two grants; one at a predefined fist place and

the other at a predefined second place, in the same downstream data packet for the same network

terminator (Fig. 2 of the specification shows two different grants being allocated in two different

PLOAM cells).

Claim 3, line 2, "a tree-like" should be changed as it cannot be determined whether the

network has a tree topology;

line 3, "said network terminator" lacks antecedent basis;

lines 11, 13, 17, and 19, "said recognition means" lacks antecedent basis;

line 12, "a predefined first place" is vague and indefinite as it cannot be

determined whether a predefined first place is a grant location(byte) or a type of grant field in a

downstream packet or somewhere else;

line 14-16, "said higher order timeslots being a subslot of a predefined number

of higher order subslots included in said predefined upstream timeslot" is vague and indefinite as

it cannot be determined how the higher order timeslots can be a subslot of a predefined number

of higher order subslots in the predefined upstream timeslot – in other words, referring to Fig. 2,

how the 4 subslots be a subslot of 4 subslots included in the 155 Mb/s slot;

line 18, "a predefined second place" is vague and indefinite as it cannot be

determined whether a predefined first place is a grant location(byte) or a type of grant field in the

same downstream packet or somewhere else (Fig. 2 of the specification shows two different

grants being allocated in two different PLOAM cells);

line 20, "to transmit said data packet in a said higher order timeslot" is vague

and indefinite as it cannot be determined from the claim language as why and how the same data

packet would be transmitted twice in the same higher order timeslot, i.e. being first transmitted in

one of a plurality of higher order timeslots in line 14 and then again in the same higher order

timeslot in response to it own grant at the predefined second place in lines 19-20.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

8.   **Claims 1** and **3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoebeke

(USPN 6,463,075 B1) in view of Stacey et al. (USPN 6,434,154 B1).

        Per **claim 1**, as shown in Fig. 1, Hoebeke teaches *a line terminator* (a central station CS),

a plurality of network terminators (network terminals T1-T4), inserting *a predefined place* (a

grant message, e.g. fifth grant message) in *a downstream data packet* (a PLOAM cell) *a grant*

(group id, e.g. GI2, to allow a terminal, e.g. T2, to occupy timeslot, e.g. 9, of the next upstream

frame) associated with *one of the network terminators* (a terminal, e.g. T2) (col. 8, ll 28-51, see

also col. 6, ll 8-29), *each one of said network terminators* (T1-T4) *transmitting an upstream*

data packet (information sent in assigned timeslot(s)) *in a predefined upstream timeslot in*

response to reception and recognition of its own grant (each terminal detects, upon receipt of a

PLOAM cell, whether it is assigned a timeslot and occupies the corresponding upstream

timeslot, col. 6, ll 1-5 and 20-29, see also Fig. 2, col. 6, ll 30-49).

        Hoebeke further teaches *a predefined first place* (reads on one of 30 grant messages in a

PLAOM cell) and *a predefined second place* (another one of 30 grant messages in a PLAOM

cell) (col. 1, ll 41-61), and that as many as timeslots are assigned as there are network terminals

in a group (col. 3, ll 10-15).

However, Hoebeke does not teach (i) transmitting the upstream data packet in a lower

order timeslot in a case when the network terminator is a lower order network terminator, (ii)

transmitting the upstream data packet in one of a plurality of higher order timeslots in a case

when the network terminator is a higher order network terminator, and (iii) transmitting the

upstream data packet in another one of the higher order timeslots in a case when the network

terminator is a higher order network terminator.

Stacey et al. teach (i) transmitting *an upstream data packet* (a packet with payload of 8

bytes sent in a minislot) in *a lower order timeslot* (a minislot with header and payload as shown

in Fig. 3) in a case when the network terminator is *a lower order network terminator* (subscriber

station 13 with low-bit rate communication) (Figs. 1-3, col. 4, ll 19-23, 32-46, 51-58, and col. 7,

ll 54-59), (ii) transmitting *an upstream data packet* (a packet with payload of more than 8 bytes,

fragmented into small messages, where first fragmented message is transmitted first) in *one of a*

plurality of higher order timeslots (one of concatenated minislots containing the first fragmented

message) in a case when *one of the network terminator* (one of subscriber stations 13) is *a*

higher order network terminator (subscriber station 13 with higher rate user data) and *the*

higher order timeslots (the concatenated minislots) being ones of *a predefined number of*

higher order subslots (4 minislots 210 in Fig. 2) included in *a predefined upstream timeslot*

(TDMA timeslot 21 in Fig. 2) (Figs. 1 and 3, col. 4, ll 19-23, 32-46, 51-58, and col. 7, ll 54-63),

(iii) transmitting *the upstream data packet* (a packet with payload of more than 8 bytes,

fragmented into small messages, where the second fragmented message is transmitted after the

first fragmented message) in *another one of said higher order timeslots* (another one of

concatenated minislots containing the second fragmented message) in the event when *one of the*

network terminators (one of subscriber stations 13) is *a higher order network terminator*

(subscriber station 13 with higher rate user data) (Figs. 1 and 3, col. 4, ll 19-23, 32-46, 51-58,

and col. 7, ll 54-63).

Therefore, it would have been obvious to one skilled in the art to incorporate the teaching

of Stacey et al. into the teaching of Hoebeke such that a predefined upstream slot of Hoebeke

would be set to a predefined upstream slot (TDMA timeslot 21) of Stacey et al. and the step of

transmitting would include transmitting the upstream data packet in a lower order timeslot in the

event when said one of said network terminators is a lower order network terminator and said

predefined place is a predefined first place, transmitting said upstream data packet in one of a

plurality of higher order timeslots in the event when said one of said network terminators is a

higher order network terminator and said predefined place is a predefined first place, said higher

order timeslots being ones of a predefined number of higher order subslots included in said

predefined upstream timeslot, and transmitting said upstream data packet in another one of said

higher order timeslots in the event when said one of said network terminators in a higher order

network terminator and said predefined place is a predefined second place as recited in the claim.

The suggestion/motivation to do would have been to improve the utilization of the available

system upstream bandwidth as taught by Stacey et al. (col. 4, ll 37-41 and col. 8, ll 1-9).

Per **claim 3**, as shown in Fig. 2, Hoebeke teaches *a line terminator* (a central station CS

in Fig. 1), *a plurality of network terminators* (network terminals T1-T4 in Fig. 1), *a*

transmitter/recognition means (the comparator CMP in Fig. 2) to recognize its own grant in *a*

downstream packet (a PLOAM cell)(col. 8, ll 9-18), *transmitting means* (the transmitting part

TP in Fig. 2) to transmit *a data packet* (information sent in assigned timeslot(s)) in *a predefined*

upstream timeslot upon recognition of said own grant (each terminal detects, upon receipt of a

PLOAM cell, whether it is assigned a timeslot and occupies the corresponding upstream

timeslot, col. 6, ll 1-5 and 20-29, see also Fig. 2, col. 6, ll 30-49).

Hoebeke further teaches *a predefined first place* (reads on one of 30 grant messages in a

PLAOM cell) and *a predefined second place* (another one of 30 grant messages in a PLAOM

cell) (col. 1, ll 41-61), and that as many as timeslots are assigned as there are network terminals

in a group (col. 3, ll 10-15).

However, Hoebeke does not teach that (i) transmitting upstream data packets at a higher

order data packet rate, (ii) transmitting data packet in one of a plurality of higher order timelots,

the higher order timeslots being ones of a predefined number of higher order subslots included in

the predefined upstream timeslot, and (iii) transmitting the data packet in another one of the

higher order timeslots.

Stacey et al. teach (i) transmitting *upstream data packet* (packet with payload of more

than 8 bytes, fragmented into small messages, col. 7, ll 59-63), (ii) transmitting *a data packet* (a

packet with payload of more than 8 bytes, fragmented into small messages, where first

fragmented message is transmitted first) in *one of a plurality of higher order timeslots* (one of

concatenated minislots containing the first fragmented message), *the higher order timeslots* (the

concatenated minislots) being ones of *a predefined number of higher order subslots* (4

minislots 210 in Fig. 2) included in *a predefined upstream timeslot* (TDMA timeslot 21 in Fig.

2) (Figs. 1 and 3, col. 4, ll 19-23, 32-46, 51-58, and col. 7, ll 54-63), and (iii) transmitting *the*

data packet (a packet with payload of more than 8 bytes, fragmented into small messages, where the second fragmented message is transmitted after the first fragmented message) in *another one of said higher order timeslots* (another one of concatenated minislots containing the second fragmented message) (Figs. 1 and 3, col. 4, ll 19-23, 32-46, 51-58, and col. 7, ll 54-63).

Therefore, it would have been obvious to one skilled in the art to incorporate the teaching of Stacey et al. into the teaching of Hoebeke such that the network terminator transmits upstream data packets at a higher order data packet rate, the recognition means would recognizes its own grant at a predefined first place and the transmitting means, upon recognition by the recognition means of said own grant at said predefined first place to transmit data packet in one of a plurality of higher order timeslots, the higher order timeslots being ones of a predefined number of higher order subslots included in the predefined upstream timeslot, and the recognition means recognizes its own grant at a predefined second place and the transmitting means, upon recognition by the recognition means of said own grant at the predefined second place, transmits the data packet in another one of said higher order timeslots as recited in the claim. The suggestion/motivation to do would have been to improve the utilization of the available system upstream bandwidth as taught by Stacey et al. (col. 4, ll 37-41 and col. 8, ll 1-9).

Per claim 4, Hoebeke teaches that *the TDMA system* (the communication network as shown in Fig. 1) is *a PON* (col. 1, ll 41-47 and col. 5, ll 53-64), and the downstream data packets are PLOAM cells (col. 1, ll 50-61 and col. 6, ll 20-25).

9.   **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoebeke (USPN 6,463,075 B1).

As shown in Fig. 1, Hoebeke teaches *a line terminator* (a central station CS), *a plurality of network terminators* (network terminals T1-T4), *an insertion device* (a transmitting part TP' in Fig. 3) inserting in *a downstream data packet* (a PLOAM cell) at *a predefined first place* (a grant message, e.g. fifth grant message) *a grant* (group id, e.g. GI2, to allow a terminal, e.g. T2, to occupy timeslot, e.g. 9, of the next upstream frame) associated with *one of the network terminators* (a terminal, e.g. T2) (col. 6, ll 50-54, col. 7, ll 66-col. 8, ll 1-8 and 28-51, see also col. 6, ll 8-29).

Hoebeke fails to teach that said insertion device, in the event when one of said plurality of network terminators is a higher order network terminator, inserts at a predefined second place of said downstream data packet a grant being associated with said one of said plurality of network terminators.

However, since Hoebeke also teaches that there are 30 grant messages in a PLOAM cell (col. 1, ll 47-55), and as many timeslots are assigned as there are network terminal in a group (col. 3, ll 10-15, see also col. 2, ll 13-21), and in the example given, there are two network terminals in a group, e.g. group G1 with group id GI1 contains T1 and T2, and G2 with group id GI2 contains T2 and T3 (col. 7, ll 32-36). Therefore, it would have been obvious to one skilled in the art to modify the teaching of Hoebeke such that said insertion device (a message generator MGM in Fig. 3), in the event when one of said plurality of network terminators is a higher order network terminator (not defined, reads on T2 transmitting 2 timeslots), inserts at a predefined second place (the sixth message containing group id GI1) of said downstream data packet (a PLOAM cell) a grant being associated with said one of said plurality of network terminators. The suggestion/motivation to do so would have been to enable the higher order network

terminator (not defined, reads on T2 transmitting 2 timeslots) to be able to transmit more than

one timeslot, e.g. 2 timeslots: timeslots 9 and 12, in a case when the terminal (T2) receives a

predefined first place (the fifth message in the PLOAM cell containing group id GI2) and a

predefined second place (the sixth message in the PLOAM cell containing group id GI1) in the

downstream packet (the PLOAM cell) through the same downstream bandwidth used in

assigning timeslot in the known method (col. 3, ll 10-15 and 22-28).

Allowable Subject Matter

10.   Claim 5 would be allowable if rewritten to overcome the rejection(s) under 35

U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations

of the base claim and any intervening claims.

Conclusion

11.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Nittaya Juntima whose telephone number is 703-306-4821. The

examiner can normally be reached on Monday through Friday, 8:00 A.M - 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chau Nguyen can be reached on 703-308-5340. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nittaya Juntima
May 26, 2004

ANDY LEE
PATENT EXAMINER